UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,141	09/25/2003	William James Hughes	AHUG.015	7570

51460 7590 07/17/2006

SIEGESMUND & ASSOCIATES (SUNSTONE)
4627 NORTH CENTRAL EXPRESSWAY
SUITE 2000
DALLAS, TX 75205

EXAMINER	
HEWITT, JAMES M	

ART UNIT	PAPER NUMBER
3679	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/671,141	HUGHES, WILLIAM JAMES	
	Examiner	Art Unit	
	James M. Hewitt	3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/20/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,17-28,34-41 and 47-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,17-28,34-41 and 47-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/25/, 12/22, 3/24*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the apparatus comprising at least one conduit containing a wire adapted to carry an electrical signal (claims 10, 27, 60), and comprising at least one conduit containing material adapted to carry an optical signal (claims 11, 28, 61) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because on lines 1-2 the implied phrase "is disclosed" should be deleted. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities:

The patent number for application 10/146,288 should be provided throughout the specification.

In lines 1-2 of paragraph [0061], the coupling collar is erroneously said to be shown in FIG. 7.

In paragraphs [0074] and [0075], numeral '302' is described as both the casing interior and coating.

Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). The following does not find proper antecedent basis in the specification: the subject matter recited in lines 9-13 of claim 1, a plurality of transmission means, first plurality of transmission means, second plurality of transmission means.

Claim Objections

Claims 1-11, 17-28, 34-41 and 47-61 are objected to because of the following informalities:

In claim 1, line 3, "section" should be inserted after "rod".

In claim 1, line 4, the first instance of "first" should be deleted.

In claim 1, line 5, "section" should be inserted after "rod".

In claim 1, lines 9-13, the phrase "wherein the plug assembly may be joined to the socket assembly by the securing device in a plurality of orientations..." should be amended to make clear that the plurality of orientations are not governed by the securing device.

In claim 2, lines 4-5, should the phrase ", and where N is equal to the number of outer splines" be deleted?

In claim 17, line 1, "cylindrical" should be replaced with "rod".

In claim 18, line 6, "section" should be inserted after "rod".

In claim 18, line 8, "section" should be inserted after "rod".

In claim 19, it is unclear as to how N can be said to be equal to the number of outer splines, when claim 18, from which claim 19 depends, requires N to be equal to the number of splines.

In claim 27, it is unclear as to how the at least one conduit containing a wire adapted to carry an electrical current relates to the transmission means recited in claim 18. For examination purposes, the transmission means has been considered to comprise the at least one conduit.

In claim 28, it is unclear as to how the at least one conduit containing material adapted to carry an optical relates to the transmission means recited in claim 18. For examination purposes, the transmission means has been considered to comprise the at least one conduit.

In claim 34, line 1, "cylindrical" should be replaced with "rod".

In claim 35, line 1, "using a cylindrical joint to join" should be replaced with "joining".

Claim 35 is objected to under 37 CFR 1.75(i), which states "Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation." Each of the using steps and the positioning step should be separate.

In claim 35, line 4, "and using" should be inserted before "a second".

In claim 35, lines 5-7, it is unclear as to how the positioning step and aligning steps are distinct. For examination purposes, they have been considered to be one and the same.

In claim 37, it is unclear as to how the positioning step relates to the aligning step in claim 35, and as to how the aligning step relates to the aligning step in claim 35. For examination purposes, they have been considered to be one and the same.

In claim 37, line 4, "the plug assembly outer splines" lacks proper antecedent basis.

In claim 37, line 5, "the receptacles" lacks proper antecedent basis.

In claim 39, the phrase "when the plug assembly of the first tubing section is inserted into the socket assembly of the second tubing section" lacks proper antecedent basis. No insertion step is recited in claim 35.

In claim 40, the phrase "when the plug assembly of the first tubing section is inserted into the socket assembly of the second tubing section" lacks proper antecedent basis. No insertion step is recited in claim 35.

In claim 41, line 1, "the coupling collar" lacks proper antecedent basis.

Claims 47-49 are objected to under 37 CFR 1.75(i), which states "Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation."

In claim 47, line 15, "rod" should be inserted before "sections".

In claim 47, line 19, "lower" should be inserted before "rod".

In claim 48, it is unclear as to how the keys and keyways relate to the splines and receptacles recited in claim 47. For examination purposes, they have been considered to be one and the same.

In claim 49, it is unclear as to how the legs and recesses relate to the splines and receptacles recited in claim 47. For examination purposes, they have been considered to be one and the same.

In claim 60, it is unclear as to how the at least one conduit containing a wire adapted to carry an electrical current relates to the transmission means recited in claim 50. For examination purposes, the transmission means has been considered to comprise the at least one conduit.

In claim 61, it is unclear as to how the at least one conduit containing material adapted to carry an optical relates to the transmission means recited in claim 50. For examination purposes, the transmission means has been considered to comprise the at least one conduit.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10, 11, 27, 28, 39, 40, 60 and 61 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claims 10, 27 and 60, it is unclear as to how the apparatus would be made with at least one conduit containing a wire adapted to carry an electrical current.

In claim 11, 28 and 61, it is unclear as to how the apparatus would be made with at least one conduit containing material adapted to carry an optical signal.

In claim 39, it is unclear as to how a pair of electrical connectors would be electrically coupled when the plug assembly of the first rod section is inserted into the socket assembly of the second rod section.

In claim 40, it is unclear as to how a pair of optical connectors would be optically coupled when the plug assembly of the first rod section is inserted into the socket assembly of the second rod section.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11, 17-28 and 34-41 and 47-61 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-66 of copending Application No. 10/633,471. Although the

conflicting claims are not identical, they are not patentably distinct from each other because the only substantive difference between the conflicting claims is that the claims of the instant application are drawn to rods and the claims of the '471 application are drawn to tubing. Using rods in place of tubing is considered obvious and fails to render the conflicting claims patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-11, 17-20, 24-28, 34-41, 50-53 and 57-61 rejected under 35 U.S.C. 102(b) as being anticipated by Moon (US 2,750,569).

With respect to claim 1, Moon discloses an apparatus comprising: a first hollow rod (1) and a second hollow rod (2); a plug assembly fixedly engaged to a first hollow rod proximate end and having a plurality of first splines (10) and a plurality of first connectors (26); a socket assembly fixedly engaged to a second hollow rod distal end and having a plurality of receptacles (defined by splines 4) and a plurality of second connectors (21); a securing device (11) for securing the plug assembly to the socket assembly; wherein the plug assembly may be joined

to the socket assembly by the securing device in a plurality of orientations (vertically, horizontally, inclined, declined, relative to a given vantage point) so that, in each of the plurality of orientations, when the plurality of splines in the plug assembly mate with the plurality of receptacles in the socket assembly, the plurality of first connectors engage the plurality of second connectors (see col. 3, lines 32-55).

With respect to claim 2, wherein the plurality of splines further comprises a center spline (24) and a plurality of outer splines of equal dimensions, the outer splines sharing a common longitudinal axis with the center spline and having symmetry about the common longitudinal axis, and where N is equal to the number of outer splines.

With respect to claim 3, wherein the securing device is a coupling collar adapted for connecting it to the plug assembly and the socket assembly, the coupling collar initially engaged with the plug assembly. Refer to Fig. 2.

With respect to claim 7, wherein the two hollow rod sections are connectable in two distinct orientations.

With respect to claim 8, wherein the two hollow rod sections are connectable in three distinct orientations.

With respect to claim 9, wherein the two hollow rod sections are connectable in four or more distinct orientations.

With respect to claim 10, further comprising at least one conduit (15) containing a wire adapted to carry an electrical current.

With respect to claim 11, further comprising at least one conduit (15) containing material adapted to carry an optical signal.

With respect to claim 17, wherein the hollow rod sections are connectable in a plurality of orientations.

With respect to claim 18, Moon discloses an apparatus for providing power to a subterranean environment, comprising: a drilling assembly containing a plurality of hollow rod sections; a plurality of hollow rod joints for connecting the plurality of hollow rod sections together, each hollow rod joint comprising: a plug assembly having a plurality of splines (10); a socket assembly having a plurality of receptacles (defined by splines 4), the plurality of receptacles adapted to receive the plurality of splines of the plug assembly; a plurality of transmission means (14, 15, 26, 19, 21) running the length of the apparatus; a securing device (11) for securing the plug assembly of one hollow rod section to the socket assembly of another hollow rod section; wherein the plug assembly of one hollow rod section and the socket assembly of another hollow rod section may be joined in N orientations (e.g. vertically, horizontally, angled, relative to a given vantage point) where N is equal to the number of splines; and wherein the plurality of transmission means are aligned for connectivity when the plurality of splines on one hollow rod joint are inserted into the plurality of receptacles on another hollow rod joint (see col. 3, lines 32-55).

With respect to claim 19, wherein the plurality of splines further comprises a center spline (24) and a plurality of outer splines of equal dimensions, the outer splines sharing a common longitudinal axis with the center spline and having

symmetry about the common longitudinal axis, and where N is equal to the number of outer splines.

With respect to claim 20, wherein the securing device is a coupling collar adapted for connection to the plug assembly and the socket assembly, the coupling collar initially engaged with the plug assembly.

With respect to claim 24, wherein the two hollow rod sections are connectable in two distinct orientations.

With respect to claim 25, wherein the two hollow rod sections are connectable in three distinct orientations.

With respect to claim 26, wherein the two hollow rod sections are connectable in four or more distinct orientations.

With respect to claim 27, further comprising at least one conduit (15) containing a wire adapted to carry an electrical current.

With respect to claim 28, further comprising at least one conduit (15) containing material adapted to carry an optical signal.

With respect to claim 34, wherein the hollow rod sections are connectable in a plurality of orientations.

With respect to claim 35, Moon discloses a method of using a hollow rod joint to joint two hollow rod sections together, comprising: using a first hollow rod section (1) having a plurality of first connectors (26) and a proximate end having a plug assembly attached and using a second hollow rod section (2) having a plurality of second connectors (21) and a distal end having a socket assembly attached, positioning the first hollow rod section coaxially with the second hollow

rod section; aligning the first hollow rod section with the second hollow rod section; engaging the plug assembly of the first hollow rod section into the socket assembly of the second hollow rod section so that the plurality of first connectors engage the plurality of second connectors; and securing the first hollow rod section to the second hollow rod section (see col. 3, lines 32-55).

With respect to claim 36, wherein the positioning step further comprises: positioning the first hollow rod section coaxially with the second hollow rod section such that the proximate end of the first hollow rod section is in close proximity with the distal end of the second hollow rod section (see col. 3, lines 32-55).

With respect to claim 37, wherein the positioning step further comprises: aligning the first hollow rod section with the second hollow rod section by rotating one or both hollow rod sections such that the plug assembly outer splines of the first hollow rod section are positioned to properly mate with the receptacle in the socket assembly of the second hollow rod section (see col. 3, lines 32-55).

With respect to claim 38, wherein the first hollow rod section is vertically above the second hollow rod section.

With respect to claim 39, wherein a pair of electrical connectors (26/21) are electrically coupled when the plug assembly of the first hollow rod section is inserted into the socket assembly of the second hollow rod section.

With respect to claim 40, wherein a pair of optical connectors (26/21) are optically coupled when the plug assembly of the first hollow rod section is inserted into the socket assembly of the second hollow rod section.

With respect to claim 41, wherein the coupling collar (11) of the first hollow rod section is used to secure the first hollow rod section to the second hollow rod section.

With respect to claim 50, Moon discloses an apparatus for connecting a plurality of casing sections together comprising: a first hollow rod section (1); a second hollow rod section (2) removably connected to the first hollow rod section; and wherein the first hollow rod section and the second hollow rod section are connectable in a plurality of distinct orientations (e.g. vertically, horizontally, angled, relative to a given vantage point); wherein a first plurality of transmission means (26) are adapted for location within the first hollow rod section and a second plurality of transmission means (21) are adapted for location within the second hollow rod section; and wherein in each of the plurality of distinct orientations, the first plurality of transmission means are aligned for connectivity with the second plurality of transmission means by means of a mating of a plurality of splines and a corresponding plurality of receptacles (see col. 3, lines 32-55).

With respect to claim 51, wherein the connection between the first hollow rod section and the second hollow rod section comprises: a means for connecting (splines) the first hollow rod section to the second hollow rod section in a plurality of distinct orientations.

With respect to claim 52, wherein the connection between the first hollow rod section and the second hollow rod section comprises: a plug assembly having a plurality of splines (10) affixed to the first hollow rod section; a socket

assembly having a plurality of receptacles (defined by splines 4) adapted to receive the plurality of splines of the plug assembly, the socket assembly being affixed to the second hollow rod section; and a securing device (11) for securing the plug assembly to the socket assembly.

With respect to claim 53, wherein the securing device is a coupling collar adapted for connection to the plug assembly and the socket assembly, the coupling collar initially engaged with the plug assembly.

With respect to claim 57, wherein the two hollow rod sections are connectable in two distinct orientations.

With respect to claim 58, wherein the two hollow rod sections are connectable in three distinct orientations.

With respect to claim 59, wherein the two hollow rod sections are connectable in four or more distinct orientations.

With respect to claim 60, further comprising at least one conduit (15) containing a wire adapted to carry an electrical current.

With respect to claim 61, further comprising at least one conduit (15) containing material adapted to carry an optical signal.

Claims 1-5, 7-11, 17-22, 24-28, 34-41, 47-55 and 57-61 rejected under 35 U.S.C. 102(b) as being anticipated by Curlett (US 4,836,305).

With respect to claim 1, from Figs. 2, 6 and 11, Curlett discloses an apparatus comprising: a first and a second hollow rod; a plug assembly (105) fixedly engaged to a first hollow rod proximate end and having a plurality of first

splines (100,104) and a plurality of first connectors (120); a socket assembly (103) fixedly engaged to a second hollow rod distal end and having a plurality of receptacles (102,106) and a plurality of second connectors (128); a securing device (84) for securing the plug assembly to the socket assembly; wherein the plug assembly may be joined to the socket assembly by the securing device in a plurality of orientations (vertically, horizontally, inclined, declined, relative to a given vantage point) so that, in each of the plurality of orientations, when the plurality of splines in the plug assembly mate with the plurality of receptacles in the socket assembly, the plurality of first connectors engage the plurality of second connectors.

With respect to claim 2, wherein the plurality of splines further comprises a center spline (104) and a plurality of outer splines (100) of equal dimensions, the outer splines sharing a common longitudinal axis with the center spline and having symmetry about the common longitudinal axis, and where N is equal to the number of outer splines.

With respect to claim 3, wherein the securing device is a coupling collar adapted for connecting it to the plug assembly and the socket assembly, the coupling collar initially engaged with the plug assembly.

With respect to claim 4, wherein the plug assembly further comprises fine threads. The threads can be considered fine, (refer to columns 8 and 9).

With respect to claim 5, wherein the socket assembly further comprises coarse threads. The threads can be considered coarse, (refer to columns 8 and 9).

With respect to claim 7, wherein the two hollow rod sections are connectable in two distinct orientations.

With respect to claim 8, wherein the two hollow rod sections are connectable in three distinct orientations.

With respect to claim 9, wherein the two hollow rod sections are connectable in four or more distinct orientations.

With respect to claim 10, further comprising at least one conduit containing a wire adapted to carry an electrical current.

With respect to claim 11, further comprising at least one conduit containing material adapted to carry an optical signal.

With respect to claim 17, wherein the hollow rod sections are connectable in a plurality of orientations.

With respect to claim 18, Curlett discloses an apparatus for providing power to a subterranean environment, comprising: a drilling assembly containing a plurality of hollow rod sections; a plurality of hollow rod joints for connecting the plurality of hollow rod sections together, each hollow rod joint comprising: a plug assembly (105) having a plurality of splines (100,104); a socket assembly (103) having a plurality of receptacles (102,106), the plurality of receptacles adapted to receive the plurality of splines of the plug assembly; a plurality of transmission means (see Fig. 7) running the length of the apparatus; a securing device (84) for securing the plug assembly of one hollow rod section to the socket assembly of another hollow rod section; wherein the plug assembly of one hollow rod section and the socket assembly of another hollow rod section may be joined in N

orientations (vertically, horizontally, inclined, declined, relative to a given vantage point) where N is equal to the number of splines; and wherein the plurality of transmission means are aligned for connectivity when the plurality of splines on one hollow rod joint are inserted into the plurality of receptacles on another hollow rod joint (e.g. refer to Fig. 11).

With respect to claim 19, wherein the plurality of splines further comprises a center spline (104) and a plurality of outer splines (100) of equal dimensions, the outer splines sharing a common longitudinal axis with the center spline and having symmetry about the common longitudinal axis, and where N is equal to the number of outer splines.

With respect to claim 20, wherein the securing device is a coupling collar adapted for connection to the plug assembly and the socket assembly, the coupling collar initially engaged with the plug assembly.

With respect to claim 21, wherein the plug assembly further comprises fine threads. The threads can be considered fine, (refer to columns 8 and 9).

With respect to claim 22, wherein the socket assembly further comprises coarse threads. The threads can be considered coarse, (refer to columns 8 and 9).

With respect to claim 24, wherein the two hollow rod sections are connectable in two distinct orientations.

With respect to claim 25, wherein the two hollow rod sections are connectable in three distinct orientations.

With respect to claim 26, wherein the two hollow rod sections are connectable in four or more distinct orientations.

With respect to claim 27, further comprising at least one conduit containing a wire adapted to carry an electrical current.

With respect to claim 28, further comprising at least one conduit containing material adapted to carry an optical signal.

With respect to claim 34, wherein the hollow rod sections are connectable in a plurality of orientations.

With respect to claim 35, Curlett discloses a method of using a hollow rod joint to join two hollow rod sections together, comprising: using a first hollow rod section (105) having a plurality of first connectors (120) and a proximate end having a plug assembly attached and using a second hollow rod section (103) having a plurality of second connectors (128) and a distal end having a socket assembly attached, positioning the first hollow rod section coaxially with the second hollow rod section; aligning the first hollow rod section with the second hollow rod section; engaging the plug assembly of the first hollow rod section into the socket assembly of the second hollow rod section so that the plurality of first connectors engage the plurality of second connectors; and securing the first hollow rod section to the second hollow rod section.

With respect to claim 36, wherein the positioning step further comprises: positioning the first hollow rod section coaxially with the second hollow rod section such that the proximate end of the first hollow rod section is in close proximity with the distal end of the second hollow rod section.

With respect to claim 37, wherein the positioning step further comprises: aligning the first hollow rod section with the second hollow rod section by rotating one or both hollow rod sections such that the plug assembly outer splines (104) of the first hollow rod section are positioned to properly mate with the receptacle in the socket assembly of the second hollow rod section.

With respect to claim 38, wherein the first hollow rod section is vertically above the second hollow rod section.

With respect to claim 39, wherein a pair of electrical connectors (120/128) are electrically coupled when the plug assembly of the first hollow rod section is inserted into the socket assembly of the second hollow rod section.

With respect to claim 40, wherein a pair of optical connectors (120/128) are optically coupled when the plug assembly of the first hollow rod section is inserted into the socket assembly of the second hollow rod section.

With respect to claim 41, wherein the coupling collar (84) of the first hollow rod section is used to secure the first hollow rod section to the second hollow rod section.

With respect to claim 47, Curlett discloses in an apparatus of the type comprising a plurality of hollow rod sections arranged in end to end relation from a location above the ground to a lower location adjacent to an orientable tool connected to a bottom end of the apparatus and wherein adjacent ends of the drill pipe sections are connected to each other to form a plurality of spaced hollow rod joints extending downwardly from the ground to the tool, the improvement which comprises manufacturing the apparatus so that the same is

in alignment form the top to the bottom thereof and wherein each hollow rod section is provided with a lower end having a plurality of splines (104,100) and an upper end having a plurality of receptacles (102,106) which is in alignment with and corresponds with the plurality of splines on the lower end of the same hollow rod section, and wherein each hollow rod joint comprises an upper hollow rod section having its splines received in corresponding receptacles in the next adjacent lower hollow rod section and wherein the splines and the receptacles can fit together in more than one orientation, wherein the adjacent end of the sections are threaded and wherein an internally threaded collar is received over the threaded ends to hold the sections of each hollow rod joint securely together, and wherein a plurality of connectors (120,128) are aligned for connectivity when the splines of the upper hollow rod section are received in the corresponding receptacles in the next adjacent hollow rod section.

With respect to claim 48, wherein the upper hollow rod section and the lower hollow rod section are provided with keyways (102,106) which are symmetrically related with respect to the longitudinal axis of the apparatus and wherein keys (100,104) are affixed to the keyways of the upper hollow rod section and are adapted to fit into the keyways of the lower hollow rod section.

With respect to claim 49, wherein the upper hollow rod section is provided with at least three downwardly extending legs (100,104) which are symmetrically arranged with respect to the longitudinal axis of the apparatus and wherein the lower hollow rod section is provided with a corresponding number of recesses (102,106) arranged so as to receive the legs of the upper hollow rod section.

With respect to claim 50, Curlett discloses an apparatus for connecting a plurality of hollow rod sections together comprising: a first hollow rod section (105); a second hollow rod section (103) removably connected to the first hollow rod section; and wherein the first hollow rod section and the second hollow rod section are connectable in a plurality of distinct orientations (vertically, horizontally, inclined, declined, relative to a given vantage point); wherein a first plurality of transmission means (120) are adapted for location within the first hollow rod section and a second plurality of transmission means (128) are adapted for location within the second hollow rod section; and wherein in each of the plurality of distinct orientations, the first plurality of transmission means are aligned for connectivity with the second plurality of transmission means by means of a mating of a plurality of splines and a corresponding plurality of receptacles.

With respect to claim 51, wherein the connection between the first hollow rod section and the second hollow rod section comprises: a means for connecting (splines/receptacles) the first hollow rod section to the second hollow rod section in a plurality of distinct orientations.

With respect to claim 52, wherein the connection between the first hollow rod section and the second hollow rod section comprises: a plug assembly having a plurality of splines (100,104) affixed to the first hollow rod section; a socket assembly having a plurality of receptacles (102,106) adapted to receive the plurality of splines of the plug assembly, the socket assembly being affixed to

the second hollow rod section; and a securing device (84) for securing the plug assembly to the socket assembly.

With respect to claim 53, wherein the securing device is a coupling collar adapted for connection to the plug assembly and the socket assembly, the coupling collar initially engaged with the plug assembly.

With respect to claim 54, wherein the plug assembly further comprises fine threads. The threads can be considered fine, (refer to columns 8 and 9).

With respect to claim 55, wherein the socket assembly further comprises coarse threads. The threads can be considered coarse, (refer to columns 8 and 9).

With respect to claim 57, wherein the two hollow rod sections are connectable in two distinct orientations.

With respect to claim 58, wherein the two hollow rod sections are connectable in three distinct orientations.

With respect to claim 59, wherein the two hollow rod sections are connectable in four or more distinct orientations.

With respect to claim 60, further comprising at least one conduit containing a wire adapted to carry an electrical current.

With respect to claim 61, further comprising at least one conduit containing material adapted to carry an optical signal.

Claims 1, 3-9, 17-18, 20-26, 34-38, 41 and 47-59 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilson (US 1,781,091).

The Wilson apparatus illustrates two hollow drill rod sections for wells joined together including a plug assembly 1 having a plurality of splines 6 and a socket assembly having a plurality of receptacles adapted to receive the plurality of splines. A couple of the splines have been interpreted as the first plurality of connectors, and a couple of the receptacles have been interpreted as the second plurality of connectors. Similarly, a couple of the splines have been interpreted as the first plurality of transmission means insofar as they transmit force, and a couple of the receptacles have been interpreted as the second plurality of transmission means insofar as they transmit force. A threaded securing device 3 for securing a plug assembly to the socket assembly wherein the plug assembly and the socket assembly can be joined multiple orientations (vertically, horizontally, inclined, declined, relative to a given vantage point) in relation to the number of splines. As to claims 3, 20 and 53, the coupling collar can be initially engaged with the plug assembly 1. As to claims 4, 21 and 54, the threads can be considered fine. As to claims 5, 22 and 55, the threads can be considered coarse. As to claims 6, 23 and 56, the threads as shown in Fig. 1 are tapered. As to claims 7-9, 17, 24-26, 34, 51 and 57-59, the two hollow rod sections are connectable in two, three, and four or more distinct orientations.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hewitt whose telephone number is 571-272-7084. The examiner can normally be reached on M-F, 930am-600pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Stodola can be reached on 571-272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMH
6/12/06

JAMES M. HEWITT
PRIMARY EXAMINER